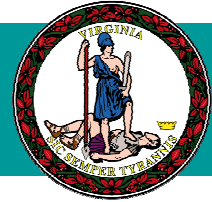


Commonwealth of Virginia's Communications Interoperability



Care and Feeding Lessons in maintaining a Radio Cache

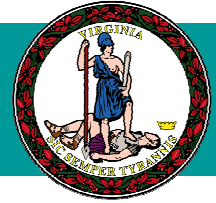
Panelists



- **Lieutenant Wes Rogers**
Fairfax County Fire & Rescue Department
- **Lieutenant Alex Fitch**
Fairfax City Fire Department
- **Master Firefighter John Freeburger**
Montgomery County (MD) Fire & Rescue Department



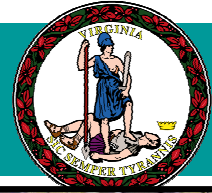
Panel Agenda



- Establishing a Radio Cache
- Minimum components
- Ongoing support and maintenance
- Questions and Answers



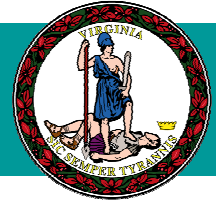
History & Overview



Why do we exist?



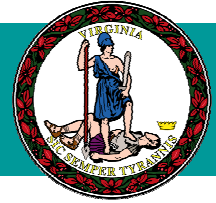
History & Overview



- Late in 2003 the MWCOCG Fire Chiefs' Committee asked the Fire Communications Sub-Committee to develop UASI grant proposal, in coordination with our law enforcement partners to procure a radio cache of 1000 portable radios for the National Capital Region
- Using more than \$5.2M of UASI funding, three caches of radios are available



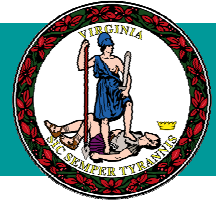
History & Overview



- The radios are pre-programmed with 14 regional trunked radio systems
 - Each radio is programmed with law enforcement and fire/rescue resources for each participating jurisdiction
 - The Radio Cache Managers have the capability to re-program the radios on site should the need arise



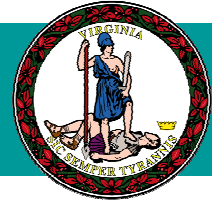
History & Overview



- The Radio Cache is available to any jurisdiction within the NCR by placing a request
 - The jurisdiction requesting the Cache accepts a financial responsibility for all equipment used
 - Deployment for emergency incidents is guaranteed to depart within two hours
 - Each host jurisdiction has a cadre of a dozen NIMS/ ICS trained COMT's or COML's. A minimum of at least three members will deploy with the cache for an event



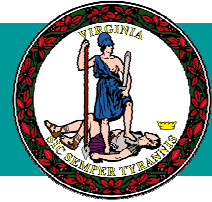
Needs Assessment



- Assess the area to be covered
 - Quantity and type of Radio Systems
- Determine how many different frequencies are in use
 - 800MHz/UHF/VHF/700MHz
- The NCR Cache consists primarily of 800 MHz radios, which is the most commonly used frequency range in the region



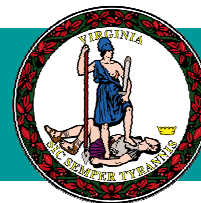
Equipment List



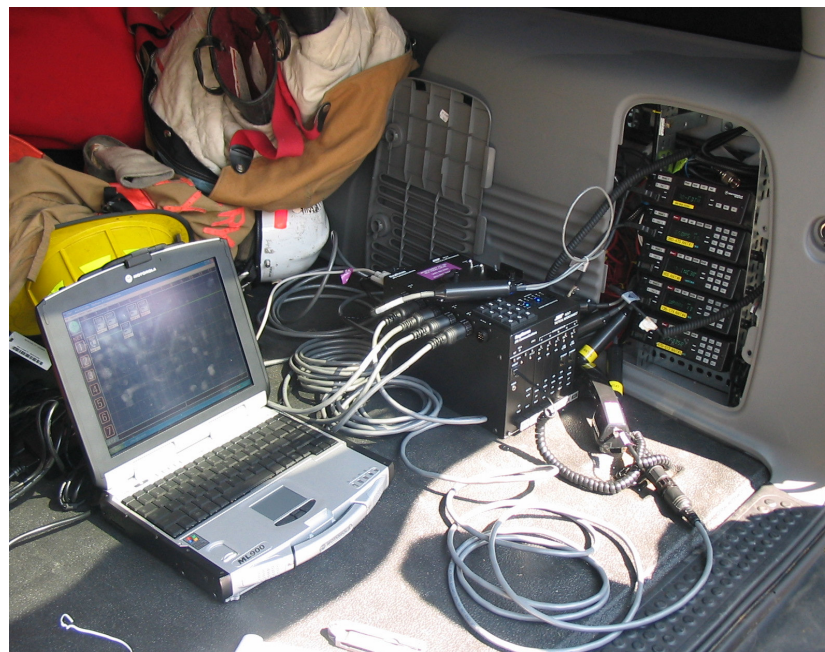
- Interoperability gateways
 - Raytheon JPS Communications, ACU-Tactical
 - Capable of providing up to three gateways utilizing up to six different subscribers
 - Ability to manually compensate for audio delays associated with trunked radio systems
 - Communications-Applied Technology, Incident Commanders' Radio Interface (ICRI)
 - Capable of providing up to four gateways utilizing up to 10 different subscribers
 - Equipped with 3000' of cable to overcome difficult coverage areas (below ground subway systems)
 - FutureCom, portable repeater
 - Portable vehicle repeater system



Equipment List

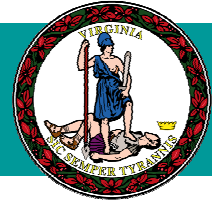


Raytheon JPS Communications, ACU-Tactical



2006
Virginia
Interoperability
Communications
Conference

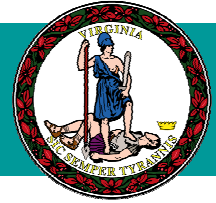
Equipment List



Communications-Applied Technology Incident Commanders' Radio Interface (ICRI)



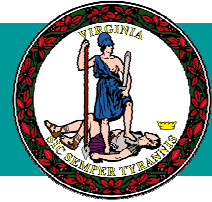
Equipment List



- Each cache carries two 800 MHz in-band FutureCom portable repeaters



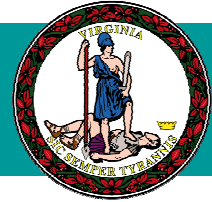
Equipment List



- Weather proof/ruggedized case with 25 radios, speaker mics, disposable batteries and antennas



Equipment List



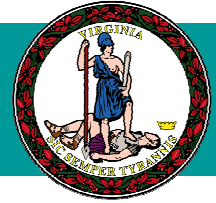
- Standard radio complement



1 Motorola XTS-5000, 1 Lithium battery, 1 antenna, 1 shoulder mic



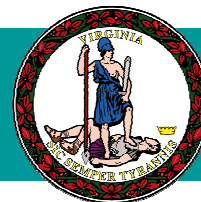
Equipment List



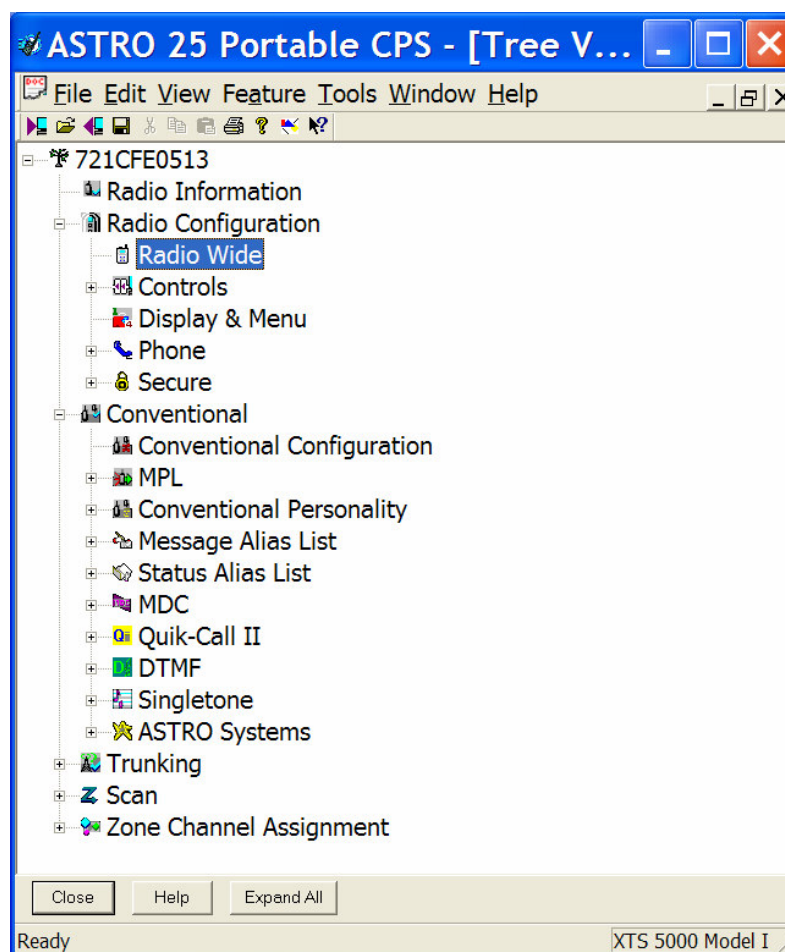
- Tool bag
- Ladders
- Extension cords
- Zip ties
- Utility rope
- Glow sticks
- Duct tape
- Administrative supplies



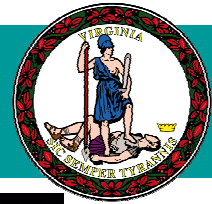
Setting Up a Cache



- Template/codeplug design
- Obtain systems ID's
- Single coordinator to distribute ID's and manage codeplug changes



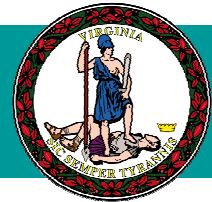
Tracking of Equipment



- A mechanism is needed for tracking of all assets as they are loaned out
- Ability to track both individuals and groups
- Software solution is recommended



Tracking of Equipment



COG Event Radio Cache

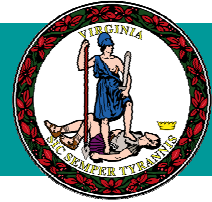
N.C.R. Assigned Event Radios

Assigned Agency	NCR Radio Alias:	Radio Serial:	Assigned Person:	Assigned Person ID	Date/Time Assigned
<input type="checkbox"/> military general dean	NCR FX033	721CEW0338	<input type="checkbox"/>	DM5827	3/22/2005 10:35:54 AM
<input type="checkbox"/> military general dean	NCR FX034	721CEW0349	<input type="checkbox"/>	DM5827	3/22/2005 10:35:54 AM
<input type="checkbox"/> military general dean	NCR FX035	721CEW0406	<input type="checkbox"/>	DM5827	3/22/2005 10:35:54 AM
<input type="checkbox"/> military general dean	NCR FX036	721CEW0499	<input type="checkbox"/>	DM5827	3/22/2005 10:35:54 AM
<input type="checkbox"/> military general dean	NCR FX037	721CEW0501	<input type="checkbox"/>	DM5827	3/22/2005 10:35:54 AM
<input type="checkbox"/> military general dean	NCR FX038	721CEW0336	<input type="checkbox"/>	DM5827	3/22/2005 10:35:54 AM
<input type="checkbox"/> military general dean	NCR FX041	721CEW0352	<input type="checkbox"/>	DM5827	3/22/2005 10:35:54 AM
<input type="checkbox"/> military general dean	NCR FX042	721CEW0486	<input type="checkbox"/>	DM5827	3/22/2005 10:35:54 AM
<input type="checkbox"/> military general dean	NCR FX043	721CEW0413	<input type="checkbox"/>	DM5827	3/22/2005 10:35:54 AM
<input type="checkbox"/> military general dean	NCR FX044	721CEW0346	<input type="checkbox"/>		3/22/2005 10:35:54 AM

Cancel 111 Records Returned - "Click" the Button Next to the Correct Record



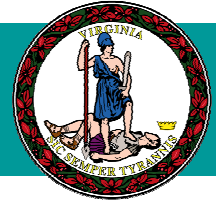
Storage & Transport



- Support equipment is stored in waterproof/ruggedized cases. The cache can provide its own shelter, work areas and power via generators



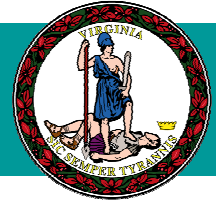
Storage & Transport



- Each cache is stored in trailer which is housed in a secure location
- Each cache has dedicated vehicles



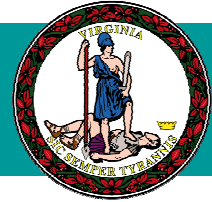
Load Plan



- Carefully distribute and secure all equipment within the vehicle specs
- Give consideration to tactical needs



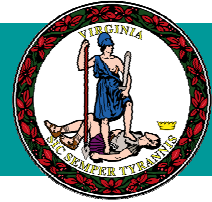
The NCR Radio Cache



- Each trailer has 2000 portable radio batteries and 30 gang chargers
 - 1000 single use Lithium-Ion batteries
 - Will power a radio for at least 24 hours
 - 10 year storage shelf-life
 - 1000 rechargeable Nickel-Cadmium batteries
 - Each trailer is equipped with two generators to power the gang chargers and other ancillary equipment



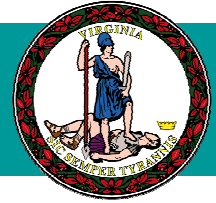
The NCR Radio Cache



- Each responding cache has the ability to supply up to 500 portable radios to a single event
- The tactical gateways provide onscene interoperability between agencies that otherwise can not communicate
- The mobile repeater gateways can provide expanded radio coverage in areas of reduced coverage



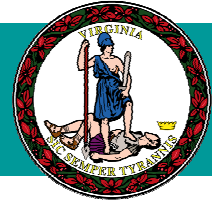
On Going Support



- Continuous review of deployment procedures
- Establish protocol for notification of system upgrades and changes that effect codeplugs
- Maintaining working relationships with vendors to stay current in all advances in technology



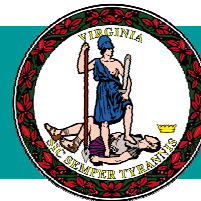
Training



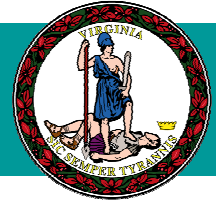
- Establish a training coordinator
- Cross train personnel on all equipment
- Conduct mobility exercises to improve operational efficiency
- Conduct a “hot wash” after every drill
- You must train regularly to stay proficient
- TRAIN TRAIN TRAIN TRAIN TRAIN



Response by ground



Other options available

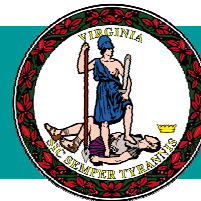


Aviation

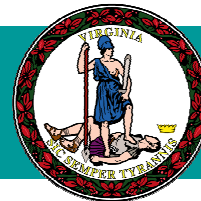
Law Enforcement



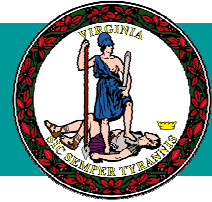
NCR Cache “BoO” Set up



Assigning radios



Assigning radios



To Select a Zone:

- Depress "softkey" on the left with horizontal bar that appears below "ZONE" on display. Zone name will flash.
- Then press an arrow key until the desired zone name appears on the display Select desired Talkgroup with Mode Select knob.

Home Button:

- Depressing the Home button for 3 seconds will cause the radio to return to "A" position talkgroup in current zone without use of the Mode knob.

To Mute Keypad Tones:

- Press the button below "MUTE".
- Press the button below OFF.

To Unmute Keypad Tones:

- Press the button below "MUTE".
- Press the button below ON.

Note: MUTE only turns off the keypad tones; no other audio functionality is affected.

To send an Emergency Alarm:

- Press the Emergency button (on top of radio).
- Emergency button will only work on trunked talkgroups.

To cancel an Emergency activation:

- Press the Emergency button (on top of radio).
- Emergency button will only work on trunked talkgroups.

To Lock Keypad:

- Rotate switch below Mode Select knob.

XTS 5000 Model II Controls

NATIONAL CAPITAL REGION RADIO CACHE

MOTOROLA XTS 5000
Digital Portable Radio Reference Card

Managed by:
Fairfax County Fire Department
&
Montgomery County Fire & Rescue

Questions please call the
NCR Cache Managers

John Rogers 571 238-5865

John Freeburger 240 832-9993

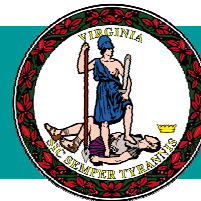
DCFD Zone A

Channel	Display	Operation
1	A1 DISP	DISPATCH
2	A2 MAIN	RESPONSE
3	A3 FG A3	FIRE GROUND
4	A4 VRS 1	FIRE GROUND
5	A5 FG A5	FIRE GROUND
6	A6 G3 ANN	Announcement
7	A7 FG A7	FIRE GROUND
8	A8 VRS 2	FIRE GROUND
9	A9 FG A9	FIRE GROUND
10	A10 FG4ANN	Announcement
11	A11 SPEV1	
12	A12 SPEV 2	
13	A13 SPEV 3	
14	A14 UUL-2	
15	A15 DIR 2	Talk around
16	A16 DIR 1	Talk around

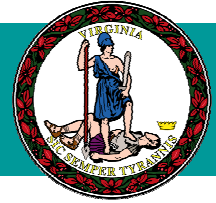
DCFD Zone "MA" Mutual Aid Fire

Channel	Display	Operation
1	MAF1	Mutual Aid
2	MAF2	
3	AMF3	
4	MAF4	
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		

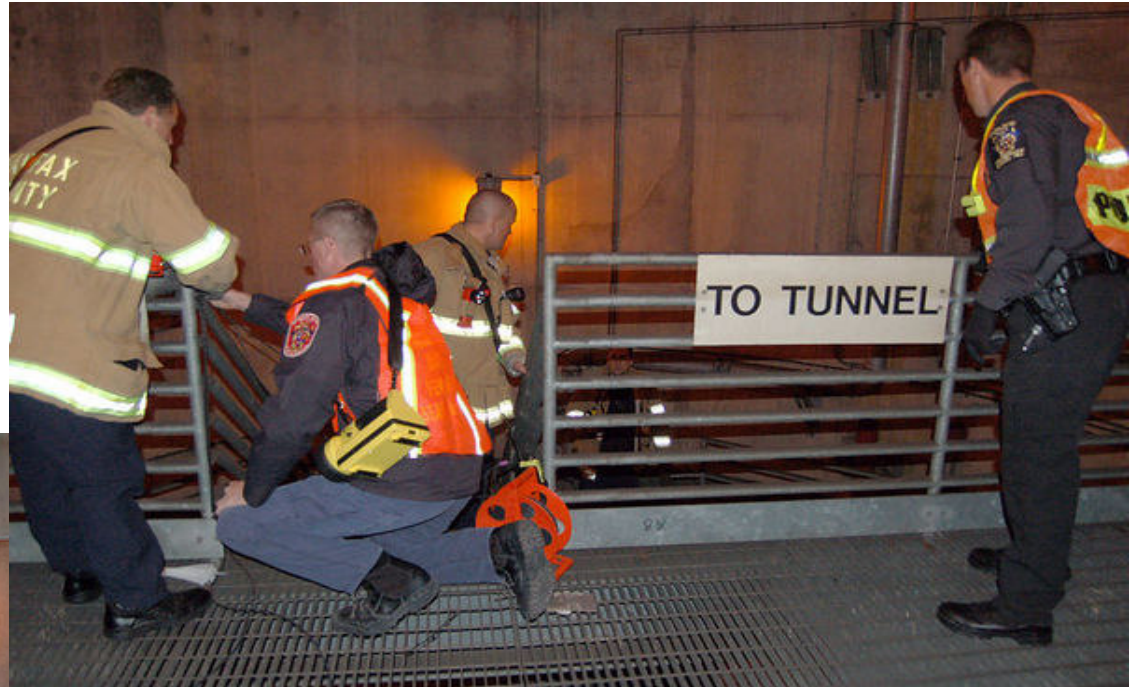
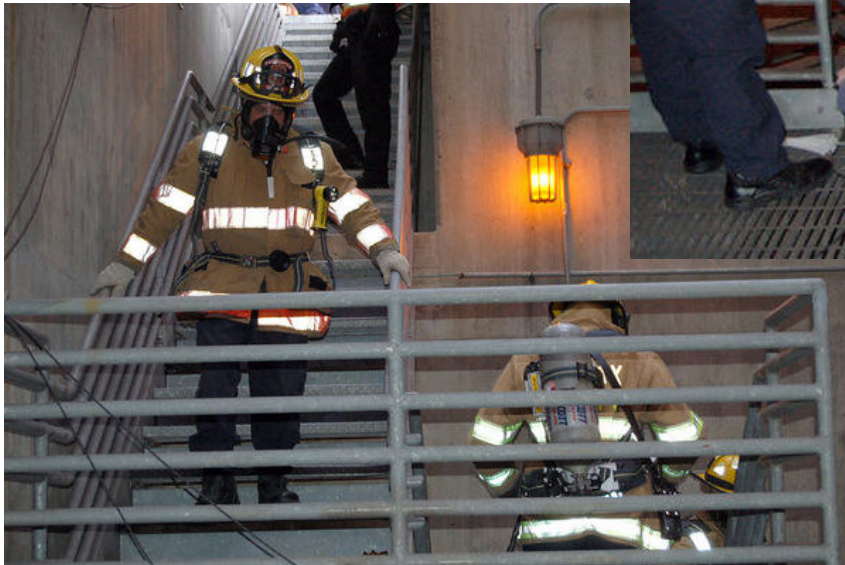
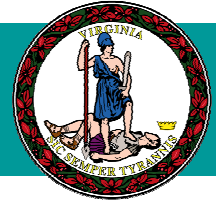
Stand alone repeaters



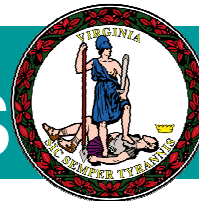
Site location



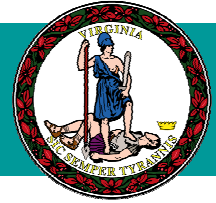
Making our way down



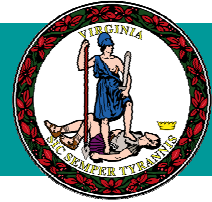
Below ground Comm Ops



Monitor what we provide

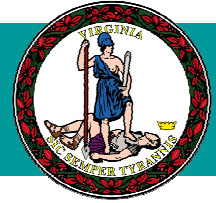


Summary



- Issues Critical to Interoperability
 - Recognition that interoperability is a necessity
 - Commanders understanding cache capabilities and early implementation
 - Willingness to work with mutual aid partners to achieve the desired outcomes
 - Understanding that compromises will be required by all parties to achieve true interoperability
 - Maintaining interoperability requires *continuous* effort





Questions?

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Lt. Alex Fitch:

AFitch@fairfaxVA.gov

MFF John Freeburger:

John.Freeburger@montgomerycountymd.gov

